USSR/ Physical Chemistry - Thermodynamics. Thermochemistry. Equilibrium. Physicochemical analysis. Phase transitions B-8

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11127

Author : Itskevich Ya.S., Strelkov P.G.
Inst : Academy of Sciences USSR
Title : Hear Capacity of Layer Lattices at Low Temperatures

Orig Pub : Dokl. AN SSSR, 1956, 106, No 5, 805-806

Abstract : Determined was the temperature dependence of the heat capacity C_p of the salts CdI_2(I), $CdBr_2$(II) and $CdCl_2$(III) from 10 to 60° K. The portion of linear correlation at relatively high temperatures expands greatly from iodide to chloride. Transition to a quadratic correlation occurs at 17-18° for I, 15-16° for II and 13-14° for III. On further lowering of temperature correlation between C_p and temperature becomes T^3. The results are not in conflict with theory (Lifshits I.M., Zh. eksperim. i teor. fiziki, 1952, 22, 475). Previously discovered anomaly (RZhKhim, 1956, 3378) the authors consider a pseudo phase transition.

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Strelkov, P.G.

120-5-25/35

AUTHORS: Strelkov, P.G., and Novikov, S.I.

TITLE: A Quartz Dilatometer for Low Temperatures (Kvartsevyy dilatometr dlya nizkikh temperatur) I. Thermal Expansion of Copper and Aluminium (I. Teplovoye rasshireniye medi i alyuminiya)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1957, No.5, pp. 105-110 (USSR)

ABSTRACT: The quartz dilatometer which has been used in the temperature range between room temperature and 1 000 °C (Refs. 1 and 2) has turned out to be fully reliable and sufficiently sensitive. For this reason, an instrument of this type was also constructed for low temperatures. In order to prevent strong convection currents down the device transmitting the expansion, and in particular to prevent such currents from reaching the measuring parts, it is necessary to place the specimen at the lowest part of the apparatus. The apparatus is very similar to that described by Hennig (Ref.3). However, the method of measuring the expansion and establishing of temperature is different. The quartz rod which is pushed up due to the expansion of the specimen (Fig.1) is held in position by a metal bracket made of a ferro-magnetic material. This bracket in turn is kept in position by a magnet. Between the metal bracket and the magnet

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A Quartz Dilatometer for Low Temperatures. I. Thermal Expansion of Copper and Aluminum.

there is a steel needle to which a small mirror is attached. When the specimen expands, the quartz rod moves up and consequently the pin carrying the small mirror turns through an angle. The rotation of the mirror can be observed and measured in the usual way. The sensitivity of the optical micrometer was such that one division on its drum corresponded to 2×10^{-5} mm expansion of the specimen. It is shown that the expansion of the quartz rod can be looked upon as a correction only down to -200 °C for substances such as tungsten. No measurements were carried out below this temperature. Corrections for the expansion of the quartz rod were carried out in accordance with the procedure given in Ref.5. The specimen was cooled by liquid nitrogen. The method of obtaining intermediate temperatures is shown schematically in Fig.1. The expansion measuring device (1, 2, 3, 4) is covered by a hermetically sealed shield with a flat window through which the rotation of the mirror can be observed. A tube 10 is attached to this shield and its lower part ends in a copper container 8 which surrounds the specimen. The tube is attached to the upper part by means of the seal 12. The

A Quartz Dilatometer for Low Temperatures. I. Thermal Expansion of Copper and Aluminum.

copper container is supplied by two windings; a platinum pick-up of the thermo-regulator and a constantan heater. On the outside, the copper container is surrounded by the envelope 9 firmly attached, independently of the tube carrying the container. This envelope separates the thermo-regulator of intermediate temperatures from cooling agent poured into a Dewar flask 17 so that the dilatometer is not moved due to vigorous boiling of the cooling agent. The gas in the envelope 9 and its pressure can be changed, which can be used to regulate the heat exchange between the cooling agent and the copper container. In this way, one can obtain temperatures intermediate between the temperature of the cooling agent and the room temperature. In order that the apparatus should work properly, it is necessary to prevent any effects due to the change of level of the cooling agent. This is attained by means of the vacuum jacket 11. The thermo-regulator (Ref.6) maintains the temperature to within 0.03 - 0.05 °C. Radiation shields 13 and 14 prevent radiation from above from reaching the specimen. The temperature is measured by a copper-

Card3/4 constantan thermocouple. Figs. 3 and 4 summarize the results

A Quartz Dilatometer for Low Temperatures. I. Thermal Expansion of Copper and Aluminum.

obtained for the expansion coefficient of copper obtained by the present authors and other authors (Refs. 8-14). Figs. 5 to 6 summarize the results for aluminum (Refs. 9, 11, 13, 16, 17, 18 and 19). A good agreement with the results given in the literature is obtained. I.I. Lifanov assisted in this work. There are 6 figures and 19 references, 4 of which are Slavic.

ASSOCIATION: All-Union Scientific Research Institute for Physico-technical and Radio-technical Measurements (Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy)

SUBMITTED: April 5, 1957.

AVAILABLE: Library of Congress

Card 4/4

STRELKOV, P.G.

STRELKOV, P.G.; SHAREVSKAYA, D.I.

Using platinum resistance thermometers for measuring temperatures in the range of 0 to-200° C. Izm. tekh. no.6:53-58 N-D '57.(MIRA 10:12)
(Thermometry)

PA - 2958

AUTHOR: ITSKEVICH,E.S., STRELKOV,P.G.

TITLE: Heat Capacity of Laminar Lattices at Low Temperatures. (Teployemkost sloistych reshetok pri nizkikh temperaturakh, Russian)

PERIODICAL: Zhurnal Eksperim. i Teoret.Fiziki, 1957, Vol 32, Nr 3, pp 467-477 (U.S.S.R.)

Received: 6 / 1957 Reviewed: 7 / 1957

ABSTRACT: The specific heat of the laminar lattices CdJ_2, $CdBr_2$ and $CdCl_2$ within the temperature range of from 1,6° to 100° K was measured by means of a device which is described in detail. Between 1,6° and 4° K, a T^3- dependence was found to exist, and between 4° and 10° K an increase of the exponent of dependence was observed, which is assumed to be caused by the weak optical branches of the interaction of the intermediate layers. From 10° K onwards the exponent decreases, in the hydrogen temperature range a quadratic dependence exists the domain of which decreases on the occasion of the transition from CdJ_2 to $CdCl_2$. At still higher temperatures a linear domain exists which widens considerably on the occasion of the transition mentioned. A comparison with the theory shows that qualitatively the results obtained do not

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Heat Capacity of Laminar Lattices at Low Temperatures.

contradict the theory developed by I.M.LIFSHITS (Zhurnal Eksperim. i Teoret.Fiziki, 1952, Vol 22, pp 471-475), but a quantitative comparison is not possible because of the non-applicability of the assumptions of this theory to the lattices examined. The two-parametric functions by V.V.TARASOV (Dokl.AN SSR 58, 1947, 577) are obviously not suited for a description of the data obtained. (4 Illustrations, 1 Table, 29 Citations from Works Published).

ASSOCIATION: Institute for Physical-Technical and Radiotechnical Measurements
PRESENTED BY:
SUBMITTED: 3.11.1956
AVAILABLE: Library of Congress

STRELKOV, P.G.

24(0); 5(4); 6(2) PHASE I BOOK EXPLOITATION SOV/2215

Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni D.I. Mendeleyeva

Referaty nauchno-issledovatel'skikh rabot; sbornik No. 2 (Scientific Research Abstracts; Collection of Articles, Nr 2) Moscow, Standartgiz, 1959. 139 p. 1,000 copies printed.

Additional Sponsoring Agency: USSR. Komitet standartov, mer i izmeritel'nykh priborov.

Ed.: S. V. Reshetina; Tech. Ed.: N. A. Kondrat'yeva.

PURPOSE: These reports are intended for scientists, researchers, and engineers engaged in developing standards, measures, and gages for the various industries.

COVERAGE: The volume contains 123 reports on standards of measurement and control. The reports were prepared by scientists of Institutes of the Komitet standartov, mer i izmeritel'nykh priborov pri Sovete Ministrov SSSR (Commission on Standards, Measures, and Measuring Instruments under the USSR Council of Ministers). The participating institutes are: VNIIM - D.I. Vsesoyuznyy nauchno-issledovatel'skiy metrologii imeni D.I. Mendeleyeva (All-Union Scientific Research Institute of Metrology imeni D.I. Mendeleyev) in Leningrad; Sverdlovsk branch of this institute; VNIIK - Vsesoyuznyy nauchno-issledovatel'skiy institut Komiteta standartov, mer i izmeritel'nykh priborov (All-Union Scientific Research Institute of the Commission on Standards, Measures, and Measuring Instruments), created from MGIMIP - Moskovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Moscow State Institute of Measures and Measuring Instruments); VNIIFTRI - Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy (All-Union Scientific Research Institute of Physicotechnical and Radio-engineering Measurements) in Moscow; KhGIMIP - Khar'kovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Khar'kov State Institute of Measures and Measuring Instruments); and NGIMIP - Novosibirskiy gosudarstvennyy institut mer i izmeritel'nykh priborov (Novosibirsk State Institute of Measures and Measuring Instruments). No personalities are mentioned. There are no references.

76-32-6-25/46

AUTHORS: Kostryukov, V. N., Samorukov, O. P., Strelkov, P. G.

TITLE: Thermodynamic Investigations at Low Temperatures (Termodinamicheskiye issledovaniya pri nizkikh temperaturakh) VII. The Phase Transitions in Solid BF_3, CF_4 and SiF_4 (VII. Fazovyye perekhody v tverdykh BF_3, CF_4 i SiF_4)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 6, pp. 1354 - 1361 (USSR)

ABSTRACT: The data by Eucken and Schröder (Ref 1) do not contain any clear explanation whether the observed transformation in the case of BF_3 is isothermal. Therefore the phase transformation can be interpreted incorrectly. For this reason the authors repeated the calorimetric investigations. They used an investigation method described already earlier, and used BF_3 preparations which had been produced by N.N.Mikhaylov at the Institute for Physical Problems, and the preparations BF_3-2 and CF_4 and SiF_4 obtained from the Institute of Applied Chemistry. From the

experimental results obtained the authors concluded that the phase transition found by Schröder and Eucken is not characteristic for the BF_3-lattice but for the system BF_3-additions; the measurements of the thermal capacity from 12.6°K to the melting point did not show any corresponding anomalies in the case of BF_3; it therefore can be concluded that in solid BF_3 no phase transition takes place. The measurements with CF_4 showed the already observed phase transition which in the present paper is, however, regarded as one of second order. An anomalous drop of the thermal capacity prior to the melting point was not noticed. It is assumed that the phase transition in CF_4, that in SiF_6 and the $\alpha \rightleftarrows \beta$ transition in quartz belong to the type of second order. Investigations of SiF_4 showed that no phase transition takes place and that therefore the question whether crystal lattices consisting of similar tetrahedric molecules would react in a similar way must be answered in the negative. Then corrections of the triple points of BF_3, CF_4 and SiF_4 are mentioned

Thermodynamic Investigations at Low Temperatures. VII. 76-32-6-25/46
The Phase Transitions in Solid BF_3, CF_4 and SiF_4

which the authors were able to carry out by experimental determinations of the depression of additions. There are 6 figures, 1 table, and 7 references, 6 of which are Soviet.

ASSOCIATION: Akademiya nauk SSSR, Institut fizicheskikh problem, Moskva (AS USSR, Moscow, Institute of Physical Problems)

SUBMITTED: February 18, 1957

1. Baron fluorides--Thermodynamic properties 2. Copper fluorides --Thermodynamic properties 3. Silicon fluorides--Thermodynamic properties 4. Metal fluorides--Temperature factors 5. Phase transitions

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SOV/56-34-3-12/55

AUTHORS: Kalinkina, I. N., Strelkov, P. G.

TITLE: The Specific Heat of Bismuth Between 0.3 and 4.4°K (Teployemkost' vismuta mezhdu 0.3 i 4.4°K)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol. 34, Nr 3, pp. 616 - 621 (USSR)

ABSTRACT: This work shortly discusses the previous works dealing with the same subject. As sample the authors took a monocrystal of spectroscopically pure and additionally several times recrystallized bismuth which was degassed in a quartz ampule at about 600°C in vacuum. The construction of the calorimeter and the methods of the measurements resemble those ones of a previous work (Reference 9). The bismuth sample and a pressed block of ammonium ferric alum (which served as sink in the measurements below 1°K) were suspended by nylon wires in a vacuum container. The heat capacity was measured at temperatures from 0.3 to 4.4°K. In the coordinates C/T and T^2 the experimental points below T = 1.8°K fit on a line and

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The Specific Heat of Bismuth Between 0.3 and 4.4°K

this line determines the coefficient in the formula for the temperature dependence of the heat capacity between 0.3 and 1.8°K; $C = (1.16 \pm 0.1).10^{-5}T + (2.79 \pm 0.09).10^{-4}T^3$ cal.degree^{-1}.g.atom^{-1}. In the domain where the T^3 - law holds, i.e. between 0.3 and 1.8°K, the Debye (Debaye)-temperature is $\Theta_D = 118.5 \pm 1$°K. The modification of Θ_D in case of higher temperatures is illustrated in a diagram. For bismuth the T^3-law holds for $T \leqslant 0.015\ \Theta_D$. The values obtained here for γ and Θ_D can be assumed to be quite reliable. Also the purity of the examined sample seems to be sufficient. Two diagrams illustrate the experimental points for bismuth with an admixture of 0.02 % lead. On that occasion no differences compared with the results for pure lead are observed. The coefficient in the linear term of the heat capacity is determined by the value of the mean density of the states of the electrons on the Fermi limit. The density of the states on the Fermi limit is $(dN/dE)_{E=E_0} = 2.85.10^{-2}$/atom.eV. The electrons will be in states which are near the bottom of the zone and for the energy the square dispersion law holds. The authors here compute the heat capacity of the electrons for the case that the Fermi surface consists of 3 similar ellipsoids which are displaced through 120° each. In this case the same result as for the isotropic model by Sommer-

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The Specific Heat of Bismuth Between 0.3 and 4.4°K

feld (Zommerfel'd) is obtained as well. In bismuth all conduction electrons seem to take part in the de Haas - van Alfvén (De Gaaz-van Al'fen)-effect. All this speaks for the fact that the main share to the linear term of the heat capacity is given by the holes, which have a considerably higher effective mass and a lower limit energy than the electrons. From the heat capacity the limit energy of the holes can be computed and the value $E_o/k = T_o = 9{,}65°K$ is found, which is about 20 times lower than the limit energy of the electrons. There are 2 figures, 2 tables, and 15 references, 3 of which are Soviet.

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute for Physical Problems of the AS USSR)

SUBMITTED: October 22, 1957

Card 3/3

SOV/115-59-2-21/38

AUTHOR: Strelkov, P.G., Sharevskaya, L.I.

TITLE: Results of Temperature Comparisons Calculated by the MSHT and the Reduction Method (Rezul'taty sravneniya temperatur, rasschitannykh po MSHT i po metode privedeniya)

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 2, p 38 (USSR)

ABSTRACT: The paper tabulates the results of the proposed method of computing the temperature of a platinum thermometer according to Mathieson's rule. The errors arising from the reduction method are very close to those resulting from the MSHT method. Tests were made with 19 Soviet and foreign types of thermometers. The Brikwedde and Hoge type thermometers were excluded from further tests after they proved unable to satisfy MSHT conditions (1948). There is 1 table and 3 references, 2 of which are Soviet and 1 English.

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Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 19, p. 48, # 76423

AUTHORS: Karasharly, K. A., Strelkov, P. G.

TITLE: Thermodynamical Investigations of Dicyclohexyldodecane

PERIODICAL: Azerb. khim. zh. 1959, No. 4, pp. 87-92 (Azerb. summary)

TEXT: A method, described in RZhKhim, 1955, No. 1, p. 204, was used to measure the true heat capacity (C_p) of dicyclohexyldodecane (I) within a range of 13 - 298.16° K. The purity of the specimen, purified by zonal melting, as determined from the depression of the freezing point, was 98.28 molar %. Deviations of the experimental points from the smoothened C_p - T curve did not exceed 0.1%. Between 14 and 27°K, $C_p = 0.016\ T^2$, $S^o_{298.16} = 130.42 \pm 0.3$ entr. units and $H^o_{298.16} - H^o_o = 19,519 + 50$ cal/mole. The temperature of the ternary point of pure I is equal to 300.58°K ± 0.02°; the melting heat is 10,581 ± 50 cal/mole.

I. Paukov

Translator's note: This is the full translation of the original Russian abstract.

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SOV/115-59-8-14/33

24(5), 28(2)

AUTHOR: Astrov, D. N., Orlova, M. P., Strelkov, P. G., and Sharevskaya, D. I.

TITLE: Comparing Low-Temperature Scales of Platinum Resistance Thermometers

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 8, p 29 (USSR)

ABSTRACT: At the 1958 session of the Konsul'tativnyy komitet po termometrii (Advisory Committee of Thermometry), a comparison of platinum resistance thermometers at temperatures below 90°K was recommended. Complying with this recommendation, the Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radioteckhnicheskikh izmereniy (All-Union Scientific Research Institute of Physical Engineering and Radio Engineering Measurements) and the National Physics Laboratory compared their platinum thermometers. The British platinum thermometer was sent to the USSR, where the authors performed this comparison at 35 temperature points ranging from 10 to 90°K. The comparison was performed in an adiabatic cryostat with a temperature change of 1.10^{-4} degree/minute. The experimental characteristics of the

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Comparing Low-Temperature Scales of Platinum Resistance Thermometers

British thermometer with the calibration of the scale of the National Physics Laboratory was compared to the IKh-6 scale. The scale of the British thermometer was obtained by calculations using the "Z-function" tables of the US National Bureau of Standards [Ref 1] and their corrections [Ref 2]. This method is fully satisfactory for the given types of platinum. Although it decreases the range of platinum brands which are applicable in this temperature range . For example, the Soviet industrial platinum "Pobeda" is about equal in purity to the British platinum ($R_{100^\circ C}/R_{0^\circ C}$ = 1.39243 for the "Pobeda" and 1.39250 for the British platinum), and does not satisfy the additional criterion. For this reason, individual calibrations of such platinum thermometers cannot be calculated by the method suggested by the National Physics Laboratory. In addition, the aforementioned method was developed for temperatures of 90-20°K, while presently a scale is

Comparing Low-Temperature Scales of Platinum Resistance Thermometers

required reaching below 20°K. The deviation between the practical scale IKh-6 and the calibration of the thermometer of the National Physics Laboratory in the range of 90 and 20°K is about 0.01° according to the authors' data. For completing the comparison of temperature scales below 90°K, direct comparisons of the scales of the National Bureau of Standards and the Soviet scale are required, since these two scales are based on primary measurements with gas thermometers. There are 1 table and 2 references, 1 of which is American and 1 Soviet.

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SOV/115-59-11-14/36

6 (5), 9 (9)

AUTHORS: Astrov, D.N., Borovik-Romanov, A.S., Orlov, M.P., Strelkov, P.G.

TITLE: The Design of a Practical Temperature Scale in the Range of 10 - 90°K

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 11, pp 35-38

ABSTRACT: In a publication made by the authors in 1954 [Ref 1], a practical temperature scale in the range of 10 - 90°K was explained. In 1958, at a session of the Advisory Committee on Thermometry of the International Bureau of Measures and Weights, an international comparison of existing temperature scales between 10 and 90°K was suggested by VNIIFTRI - Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy (All-Union Scientific Research Institute of Physical and Radio Engineering Measurements). This article is based on the previous publication [Ref 1] of the aforementioned authors and deals with equipment and measuring methods. The au-

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The Design of a Practical Temperature Scale in the Range of 10 - 90°K

thors explain first the individual characteristics of thermometers, mentioning briefly platinum and gas thermometers. They describe briefly a membrane-gage measuring instrument and pressure measurements in the reservoir of a gas thermometer. They explain the assembly of the equipment and the cryostat used. Finally, the measuring method is outlined briefly. There are 4 diagrams, 1 table and 14 references, 8 of which are Soviet, 3 German, 2 French and 1 Dutch.

NOVIKOVA, S.I.; STRELKOV, P.G.

Thermal expansion of silicon at low temperatures. Fiz.tver.tela 1 no.12:1841-1843 D '59. (MIRA 13:5)

1. Vsesoyuznyy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy.
(Silicon--Thermal properties)

5(4)

SOV/76-33-7-19/40

AUTHORS: Itskevich, Ye. S., Strelkov, P. G.

TITLE: Thermodynamic Investigations at Low Temperatures. VIII. Specific Heat of Cadmium Chloride and Iodide Between 1.6 and 300°K. Enthalpy and Entropy of $CdCl_2$ and CdJ_2 at 298.16°K

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 7, pp 1575-1580 (USSR)

ABSTRACT: The values of entropy (S) and enthalpy (H) of $CdCl_2$ and CdJ_2 are important from the practical and theoretical standpoint since they refer to substances of an isomorphous series. In the present case, the specific heat of anhydrous $CdCl_2$ at 100-300°K was measured by means of the same preparation and the same vacuum calorimeter as was done in previous measurements within the range 1.6 to 100°K (Refs 1, 2). From the results obtained (Table 1) and data of the article (Refs 1, 2) the following values at 298.16°K resulted: $S^{o}_{298.16}$ = 27.55 ± 0.08 cal/degree·mol [illegible] and $H^{o}_{298.16} - H_{0}$ = 3791.3 ± 11.4 cal·mol. According to the data

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Thermodynamic Investigations at Low Temperatures. VIII. Specific Heat of Cadmium Chloride and Iodide Between 1.6 and 300°K. Enthalpy and Entropy of $CdCl_2$ and CdJ_2 at 298.16°K SOV/76-33-7-19/40

of (Ref 3), approximate values were obtained for the melting temperature of $CdCl_2$: $S_{841.2°K\ (solid)} = 48.09$ cal/degree·mol and $H_{841.2°K\ (solid)} - H_o = 14789$ cal/mol. CdJ_2 was measured in the same manner as $CdCl_2$. The measurement results (Table 2) presented the following values at 289.16°K: $S^{\circ}_{298.16} = 37.67 \pm 0.09$ cal/degree·mol and $H_{298.16} - H_o = 4512.2 \pm 11.3$ cal/mol. Measurements of the specific heat of CdJ_2 at 260 - 275°K, which were made by means of two different samples with a "pro analysi" degree of purity, showed no anomalies of specific heat at 267-270°K. It is therefore assumed that the varying anomaly of the curve of specific heat of CdJ_2 near 270°K (Ref 4) does not refer to the specific heat of the crystal lattice. There are 3 figures, 2 tables, and 4 references, 3 of which are Soviet.

SUBMITTED: January 4, 1958

Card 2/2

SOV/115-60-1-16/28

AUTHOR: Borovik-Romanov, A.S., Orlova, M.P. and Strelkov, P.G.

TITLE: Establishing a Practical Temperature Scale for the 10-90° K Range. Deviations of the International Temperature Scale From the VNILFTRI Group Standard Scale and the Thermodynamic Scale Near the Oxygen Point.

PERIODICAL: Izmeritel'naya tekhnika, 1960, Nr 1, pp 34-35 (USSR)

ABSTRACT: The VNIIFTRI temperature scale for the 10-95° K range coincides with the International Scale ("MShT") at the boiling-point of oxygen (-182,97°C) except for a discrepancy of 0.01° in the 90-95° K range, which means that the interpolation formula is only suitable for temperatures near 90° K. Former comparisons made by Heuse and Otto [Ref. 3], Keesom and Dammers [Ref. 4], and Bricwedde and Hoge [Ref. 5]

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Establishing a Practical Temperature Scale for the 10-90° K Range. Deviations of the International Temperature Scale From the VNIIFTRI Group Standard Scale and the Thermodynamic Scale Near the Oxygen Point

appear to be insufficiently accurate. The authors suggest a better practical scale for the 90-273° K range. Use of the interpolation power formulas is not advised and recommendations are made to establish a scale according to the principle suggested by Strelkov and Sharevskaya [Ref. 6]. The VNIIFTRI group standard thermometers were compared at the boiling-point of "natural composition" hydrogen, which was determined as

$$T = 20.39 \pm 0.003$$

This value can differ from the thermodynamic temperature of boiling hydrogen by the value

$$20.39 \left[\frac{TO_2}{90.19} - 1\right] \pm 0.006^\circ K$$

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SCV/115-60-1-16/28

Establishing a Practical Temperature Scale for the 10-90° K Range. Deviations of the International Temperature Scale From the VNIIFTRI Group Standard Scale and the Thermodynamic Scale Near the Oxygen Point

The article includes a temperature table of the boiling-point of "natural composition hydrogen", measured by different authors, after the phenomenon of ortho-para conversion became known. There are 3 graphs, 1 table and 12 references, of which 5 are Soviet, 4 German, 1 Dutch and 2 unidentified.

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SHLYANKIN, A.A. (Moskva); STRELKOV, P.G. (Moskva)

Reproducibility and accuracy of present numerical values for the entropy and enthalpy of condensed phases at standard temperatures. PMTF no.2:100-111 Jl-Ag 60. (MIRA 14:6)
(Entropy) (Enthalpy) (Phase rule and equilibrium)

KRAFTMAKHER, Ya.A. (Moskva); STRELKOV, P.G. (Moskva)

Automatic regulation of adiabatic processes in calorimetric measurements. PMTF no.3:194-197 S-O'60. (MIRA 14:7)
(Calorimetry)
(Automatic control)

85347
S/120/60/000/005/017/051
E032/E514

17 4430

AUTHORS: Lifanov, I. I. and Strelkov, P. G.

TITLE: A Dilatometer for Studying Porous Materials at Various Temperatures and Humidities

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No.5, pp.76-80

TEXT: The dilatometer can be used to investigate small specimens of porous materials, the optimum dimensions of the specimens being 10-40 mm long and 8-15 mm in diameter. The dilatometer is similar to the quartz dilatometer described by Strelkov in Refs.1-3. The dilatometer is shown in Fig.1. The specimen 15 rests on the support 16 and is covered by a plane parallel quartz plate. A quartz rod 1 rests on this plate and passes out of the dewar in which the specimen is located. This quartz rod carries a short steel sleeve 2 at its upper end which is attracted by the pole-piece 4 of the external magnet 5. A small steel roller is placed between this steel sleeve and pole-piece. When the specimen expands, the quartz rod 1 is pushed in the upward direction and as a result the steel roller between the steel sleeve and the pole-piece is rotated. The rotation of the roller is measured by a special autocolimating tube. The sensitivity of the instrument is 1.7×10^{-5}

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E032/E514

A Dilatometer for Studying Porous Materials at Various Temperatures and Humidities

to 2.5×10^{-5} mm. Fig.3 shows the natural expansion of the instrument as a function of temperature. The instrument has been used to determine the coefficient of thermal expansion of various specimens of concrete. The results obtained are shown in Figs. 6-8. In all cases the relative change in length was found to be a linear function of the temperature. The results obtained suggest that the dilatometer is capable of recording changes in length of the order of 0.001%. Effects associated with the presence of moisture in the specimens can be easily detected. There are 8 figures and 3 Soviet references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy
(All Union Scientific Research Institute for Physical-Technical and Radio Technological Measurements)

SUBMITTED: July 15, 1959

Card 2/2

00752

S/120/60/000/006/028/045
E032/E314

11,3100

AUTHORS: Voronel', A.V. and Strelkov, P.G.

TITLE: Method for Measuring the Specific Heat of Liquefied Gases Above Their Boiling Point

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No. 6, pp. 111 - 112

TEXT: In a previous paper the second of the present authors et al (Ref. 1) described a method for measuring the specific heat of liquefied gases at pressures not exceeding 1-2 atm. The present paper describes a development of this method in which the range of possible pressures is extended to some tens of atm. The principal difficulty was to produce a calorimeter which is sufficiently light for its specific heat to be small compared with the specific heat of the specimen and at the same time sufficiently rigid to withstand the high pressure. The design shown in Fig. 1 was found to be most satisfactory. The calorimeter was in the form of two cylindrical tubes 1 and 2 made of stainless steel, 0.18 mm thick. One of these tubes is inserted into the other to a depth of 5 mm and is then soldered in. Next, a

Card 1/5

86752

S/120/60/000/006/028/045
E032/E314

Method for Measuring the Specific Heat of Liquefied Gases Above Their Boiling Point

wide (20 mm) stainless-steel ring 3 is placed over the joint and is also soldered in. A thin-walled steel tube 4 (5 mm in diameter) passes through the middle of the calorimeter. A platinum thermometer 6 is inserted into this tube. The internal volume of this calorimeter was about 105 cm^3. With soft-soldered joints the calorimeter withstood pressures in excess of 70 atm without appreciable deformation. The weight of the calorimeter is about 55 g and its thermal capacity is about 25 joules/^{o}C at room temperature. The heater 7 was in the form of a constantan coil, 0.1 mm in diameter threaded through a copper capillary, and insulated from it by the 5Φ-4 (BF-4) material. The mixing of the liquid was achieved by the magnetic mixer 8, consisting of two stainless-steel discs. The thermal insulation and the

Card 2/5

86752

S/120/60/000/006/028/045
E032/E314

Method for Measuring the Specific Heat of Liquefied Gases Above Their Boiling Point

method of filling the calorimeter is as described in Refs. 1 and 3. Only the high-pressure valve had to be modified and this is described in Ref. 4. The apparatus was checked by measuring the specific heat of nitrogen between about 95 and 120 °K. The results obtained were found to be in agreement with published data. The specific heat could be determined to within 1%.

Card 3/5

S/120/60/000/006/028/045
E032/E314

Method for Measuring the Specific Heat of Liquefied Gases Above Their Boiling Point

Fig. 1

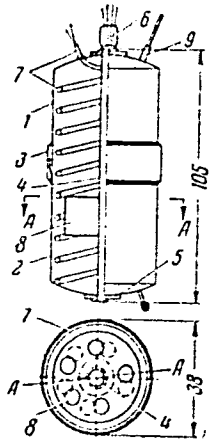

Рис. 1

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86752
S/120/60/000/006/028/045
E032/E314

Method for Measuring the Specific Heat of Liquefied Gases Above Their Boiling Point

There are 2 figures and 8 references: 5 Soviet, 2 English and 1 Swedish.

ASSOCIATION: Nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy (Scientific Research Institut of Physico-technical and Radiotechnical Measurements)

SUBMITTED: October 28, 1959

Card 5/5

SHAREVSKAYA, D.I.; STREIKOV, P.G.; BOROVIK-ROMANOV, A.S.; ASTROV, D.N.; MOROZOVA, G.Kh.

Difference in the temperature coefficients of the resistance of some kinds of platinum in the range of 10.8 and 273.16°K. (MIRA 13:7)
Izm.tekh. no.7:34-37 Jl '60.
(Thermometry) (Platinum--Thermal properties)

87953
S/115/60/000/012/006/018
B021/B058

24.2140 (1158, 1160, 1072)

AUTHORS: Sharevskaya, D. I. and Strelkov, P. G.

TITLE: Resistance of Thermometric Platinum in the Temperature Range of Liquid Helium

PERIODICAL: Izmeritel'naya tekhnika, 1960, No. 12, pp. 18-19

TEXT: The authors describe the measurement results of the residual resistances of 11 platinum types of various origin. The types ИХ -3 (IKh-3), ИХ-4 (IKh-4), ИХ-5 (IKh-5), and ИХ-6 (IKh-6) were affined, molten, and drawn at the laboratory of the Institut obshchey i neorganicheskoy khimii AN SSSR (Institute of General and Inorganic Chemistry AS USSR). The specimens Pt-50, Pt-51, and П -12 (P-12) represent Soviet platinum and Am-I, Am-II, and Am-III American technical platinum. A platinum thermometer sent from Britain by the National Physical Laboratory for comparing the thermometric scales below 90°K is denoted by B. The wire of 10 specimens was drawn in the laboratory to a diameter of 0.05 mm, and resistance thermometers of the design by P. G. Strelkov were then made from it. At 0°C the resistance of the thermometers amounted to nearly 100 ohm and

Card 1/2

87953

Resistance of Thermometric Platinum in the Temperature Range of Liquid Helium

S/115/60/000/012/006/018
B021/B058

was measured in liquid helium at a temperature of 4.2°K and a steam pressure corresponding to a temperature of 1.5°K. The sensitivity of the measuring scheme made it possible to measure the resistance with an accuracy of ± 0.01%. The measurement results are tabulated. The experimental values of residual resistances of various platinum types make it necessary to drop Matthiessen's rule. One more summand, characterizing the given type of platinum and being dependent on temperature, must be added to the rule for an adequate description of the temperature dependence of the platinum resistance. According to Kohler, such a formula for the resistance would be in agreement with the modern theory of metals. There are 2 tables and 5 references: 4 Soviet and 1 German.

Card 2/2

KARSHARLI, K.A., STRELKOV, P.G.

Thermodynamic properties of diphenyldodecane ($C_{24}H_{34}$) at a temperature range from 13.3 to 298.18°K. Dokl.AN Azerb.SSR 16 no.3:249-253 '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy pri Komitete standartov mer i izmeritel'nykh priborov. Predstavleno akademikom AN AzerSSR M.F. Nagiyevym.
(Dodecane--Thermal properties)

KARASHARLI, K.A.; STRELKOV, P.G.

Thermodynamic properties of 1-phenyl-cyclohexyldodecane ($C_{24}H_{10}$) in the the temperature range from 14 to 298.16°K. Dokl.AN Azerb.SSR 16 no.4:341-344 '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy pri komitete standartov. Predstavleno akad. AN AzerSSR M.F. Nagiyevym.
(Cyclododecane--Thermal properties)

AUTHORS: Karasharli, K. A., Strelkov, P. G.

S/076/60/034/03/035/038
B005/B016

TITLE: Thermodynamic Properties of Dicyclohexyldodecane

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 3, pp 693-695 (USSR)

TEXT: The dicyclohexyldodecane ($C_{24}H_{46}$) used by the authors was synthesized at the Institut nefti AN SSSR (Petroleum Institute of the AS USSR) by A. A. Petrov (Ref 1). The hydrocarbon was purified in a chromatographic way. By an additional fine purification by means of the zonal fusion process the degree of purity could be raised to 98.28%. It was calorimetrically determined from the melting point depression (Fig 1). This method, however, is reliable only if the impurities in the solid phase are insoluble, which is not quite clear in the present case. The authors determined the heat capacity of solid dicyclohexyldodecane as dependent on temperature. The heat capacity of the empty calorimeter was determined at 47 temperatures, that of the calorimeter with $C_{24}H_{46}$ at 69 temperatures between 12 and 320°K. Helium was used as filling gas for the calorimeter. In the total temperature range under consideration no deterioration of the heat exchange occurred, which indicates that helium was not adsorbed by the hydrocarbon. The results of the 69 measurements are summarized in a table.

Card 1/3

Thermodynamic Properties of Dicyclohexyldodecane

S/076/60/034/03/035/038
B005/B016

Owing to its impurities the hydrocarbon began to melt already below the triple point. In order to obtain values for the heat capacity of solid $C_{24}H_{46}$ in the range closely below its melting point, a value C_i is subtracted from the values experimentally obtained, which was calculated from the formula

$C_i = \frac{T^* - T^s}{(T^s - T_i)^2} \cdot \lambda$. C_i - effective increase in heat capacity due to the melting with the impurities; T^* - triple temperature; T^s - melting point of the sample; T_i - temperature, for which C_i is to be calculated; λ - melting heat. Figure 2 shows the results corrected in this way for the temperature range closely below the melting point in a T - 1/X diagram. Since the heat capacity of the hydrocarbon investigated at 13 - 27°K does not obey Debye's law, the curve was graphically extrapolated for T = 0°K. Between 13 and 27°K the temperature dependence of the heat capacity can be well expressed by the equation $C_p = 0.016T^2$. The authors determined the following thermodynamic data for the hydrocarbon investigated: standard entropy $S_{298.16} = 130.4 \pm 0.3$ E.U.; enthalpy $H_{298.16} - H_o =$ = 19519±50 cal/mole; the melting point of the sample investigated was 300.26±0.02°K, for the triple point T^* a value of 300.58±0.02°K was calculated.

Card 2/3

Thermodynamic Properties of Dicyclohexyldodecane

S/076/60/034/03/035/038
B005/B016

The melting heat λ was determined to be 10581±50 cal/mole. Therefrom it follows for the melting entropy of dicyclohexyldodecane:

$S_{m.p.} = \frac{10581}{300.58} = 35.2 \pm 0.15$ cal/deg.mole. The authors thank V. N. Kostryukov, Candidate of Physical and Mathematical Sciences, for his valuable advice and the laboratory assistants L. Ya. Matasova and L. G. Khersonets for their assistance in measurements. There are 2 figures, 1 table, and 3 references, 2 of which are Soviet.

SUBMITTED: August 15, 1959

Card 3/3

S/076/60/034/06/25/040
81572
B015/B061

5.4800

AUTHORS: Itskevich, Ye. S., Strelkov, P. G. (Moscow)

TITLE: Thermodynamic Studies at Low Temperatures. IX. Specific Heat of Cadmium Bromide Between 1.5 and 300°K. Enthalpy and Entropy of $CdBr_2$ at 298.15°K

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 6, pp. 1312-1315

TEXT: In addition to preceding determinations at 1.5 to 80°K (Refs. 1, 2) the specific heat of $CdBr_2$ from 80° to 300°K was measured, and the enthalpy and entropy for the standard temperature were calculated. The work was carried out by the method described in Refs. 1, 3. Part of the results is given in Table 1. The values calculated are: $S^o_{298.15}$ = 33.18 ± 0.08 cal/degree·mole; $H^o_{298.15} - H_o$ = 4235.3 ± 12.7 cal/mole

The entropy value obtained was compared with those calculated by V. A. Kireyev (Ref. 5) for $CdCl_2$, $CdBr_2$, and CdI_2, and agreement (Table 2) within

Card 1/2

Thermodynamic Studies at Low Temperatures. IX. Specific Heat of Cadmium Bromide Between 15 and 300°K. Enthalpy and Entropy of $CdBr_2$ at 298.15°K

S/076/60/034/06/25/043
B015/B061

the limits of error (4%) was established. An entropy value calculated by M. Kh. Karapet'yants' formula (Ref. 6) agreed with the value in question within the same limits of error (4.2%). E. G. Pinsker is mentioned in the text. There are 2 figures, 2 tables, and 7 Soviet references.

ASSOCIATION: Institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy (Institute of Physical, Technical, and Radiotechnical Measurements)

SUBMITTED: August 18, 1958

4

SHAREVSKAYA, D.I.; STRELKOV, P.G.

Transmitting practical temperature scales in the range of 10 to 90°K. (MIRA 14:2)
Izm.tekh. no.2:16-20 F '61.
(Thermometers)

SKLYANKIN, A.A.; STRELKOV, P.G.; KOSTRYUKOV, V.N.

Standard table of the heat capacity of benzoic acid at constant volume in the temperature range of 10 to 350 K. Izm.tekh. no.6: 24-26 Je '61. (MIRA 14:5)
(Benzoic acid--Thermal properties)

[illegible]YAYA, D. I.; [illegible], P. G.; [illegible], A. S.; [illegible], D. V.; [illegible], V. M.

"[illegible] de reduction des resultats obtenus au cours de l'etalonnage individuel des thermometres a resistance a l'echelle internationale pratique de temperature dans le domaine 10-[illegible]°K"
Report presented at the 6th Session of the Advisory Committee on Thermometry to the International Committee on Weights and Measures, Sevres, France, 25-27 Sep 62

Institut des Mesures Physicotechniques (I. R. T. S.)

CHA[illegible]SKAYA, N. I.; [illegible], D. M.; [illegible], A. S.;
[illegible], M. P.; [illegible], P. G.

"Realisation de l'echelle pratique de temperature dans le domaine de 10 a 90°K,"
Report presented at the 7th Session of the Advisory Committee on Thermometry to the International Committee on Weights and Measures, Sevres, France, 25-27 Sep 1962.

Institut des Mesures physicotechniques (U. R. S. S.)

S/181/62/004/008/030/041
B108/B102

AUTHORS: Strelkov, P. G., and Shpunt, A. A.

TITLE: Dependence of the strength of extruded whiskers on their dimensions

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 2258 - 2261

TEXT: The bending strength of lithium fluoride whiskers produced by spontaneous extrusion was studied. It has been found that the elastic limit of the whiskers rises rapidly in the range of $a < 2 - 3$ (a^2 is the cross section of one filament). Various filaments of approximately the same cross section ($a \sim 1.7\mu$) had elastic limits of 0.5 - 4%. Such different values are due to inaccurate measurement, different crystallographic orientation of the specimens, and other factors. In accordance with other research work it was established that extruded whiskers with $a \sim 1\mu$ cannot contain any dislocations. The measurements yielded a strength of the order of magnitude of that strength that was expected according to theory. There are 2 figures.

Card 1/2

Dependence of the strength ...

ASSOCIATION: Institut teplofiziki Sibirskogo otdeleniya AN SSSR Novosibirsk
(Institute of Heat Physics of the Siberian Department AS USSR
Novosibirsk)

SUBMITTED: May 24, 1962

Card 2/2

39986
S/181/62/004/008/035/041
B108/B102

AUTHORS: Kraftmakher, Ya. A., and Strelkov, P. G.

TITLE: Formation energy and concentration of vacancies in tungsten

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 2271 - 2274

TEXT: The formation energy and concentration of vacancies in tungsten was determined from the specific heat whose temperature dependence was measured from 2000 to 3600°K. Temperature of the specimens was modulated on a frequency of some 120 cps by a current (constant + variable components) passing through the specimens. The rise in specific heat at high temperatures was measured as $\Delta C_p = (U^2/RT^2)A \exp(-U/RT)$, where U is the formation energy of the vacancies, $A \exp(-U/RT)$ is the vacancy concentration at temperature T. Measurements and evaluation of this formula yielded for tungsten a vacancy formation energy of 72.5 kcal/g-atom. The vacancy concentration is $c = 670 \exp(-72500/RT)$, which at 3600°K is 2.7%. There are 2 figures.

Card 1/2

S/181/62/004/008/035/041
B108/B102

Formation energy and ...

ASSOCIATION: Institut teplofiziki Sibirskogo otdeleniya AN SSSR Novosibirsk (Institute of Heat Physics of the Siberian Department AS USSR, Novosibirsk)

SUBMITTED: April 26, 1962

Card 2/2

SKLYANKIN, A.A.; STRELKOV, P.G.

Convergence of experimental heat capacity values for benzoic acid between 14° and 90°K when using different temperature scales. PMTF no.2:161-162 Mr-Ap '63. (MIRA 16:6)
(Benzoic acid--Thermal properties)

ACCESSION NR: AP4042028 S/0030/64/000/006/0026/0030

AUTHORS: Novikov, I. I. (Corresponding member AN SSSR); Strelkov, P. G. (Corresponding member AN SSSR)

TITLE: Study of physical properties at elevated temperatures

SOURCE: AN SSSR. Vestnik, no. 6, 1964, 26-30

TOPIC TAGS: physical property, refractory metal, high temperature, temperature oscillation, heat capacity, thermal conductivity, phase shift, heat wave, viscosity, liquid metal, alkaline metal

ABSTRACT: Various techniques developed at the Institut teplofiziki, Sibirskogo otdeleniya (Heat Physics Institute, Siberian branch) for measuring various physical properties of refractory metals at high temperatures were discussed. The first is a modulation method developed by Ya. A. Kraft-makher whereby the specimen is heated in a vacuum with a current having both constant and variable components. This induces periodic temperature oscillations with amplitudes proportional to the heat capacity of the metal. Some modulation measurements made on tungsten show a sharp rise in c_p after 2800K. Another method (developed by G. A. Kraynov) measures the thermal conductivity of the metals by periodically

1/2

ACCESSION NR: AM4042633

[illegible] surface of the slab and measuring the phase shift of the heat waves [illegible] of the plate. Other methods include calorimetric techniques devised by [illegible] V. Malinen[illegible], SPP-58 spectrometric determinations of temperature with an accuracy of 0.5° up to 1700K by V. A. Kovalevskiy and L. A. Boyarskiy, viscosity measurements of liquid metals performed by A. N. Solov'yev and A. B. Kaplun, relating phase shifts and frequency of induced oscillations to the viscosity coefficient, and measurements of electrical conductivity of alkaline metals up to 1000C by a capillary method. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

SUB CODE: MM NO REF SOV: 000 OTHER: 000

Card 2/2

MIRENSKIY, D.S.; POTAPOV, L.P.; STRELKOV, P.G.

Errors caused by the optical system of a dilatometer. Izm.tekh. no.8:21-23 Ag '64. (MIRA 17:12)

L 1902-66

ACCESSION NR: AP5024166

UR/0115/65/000/008/0015/0017
536.52.088

AUTHOR: Boyarskiy, L. A.; Strelkov, P. G.

31
B

TITLE: Reproducibility of the position of the temperature lamp on the optical bench of a spectropyrometer

SOURCE: Izmeritel'naya tekhnika, no. 8, 1965, 15-17

TOPIC TAGS: optic pyrometer, optic brightness, light source, temperature measurement

ABSTRACT: Data were obtained on the angular distribution of the brightness of temperature lamps (standard brightness sources) for spectropyrometers. Measurements of the apparent brightness temperature were made with an SPP-58 spectropyrometer first on a steady lamp, and then while the latter was turned around the vertical and horizontal axis in different directions. A fairly strong angular dependence of the brightness, and hence, brightness temperature was found for all the lamps tested (lamps 51, 52, and 53). The magnitude of the effect considerably surpassed any errors connected with the manipulation. Turning by the same angle but in two different directions usually produced different changes in apparent

Card 1/2

L 1902-66
ACCESSION NR: AP5024166

temperature. The temperature dependence of this effect was studied. The experiments showed that at the present time the accuracy of basic metrological work in the field of optical pyrometry is restricted not so much by the capabilities of the apparatus employed as by the shortcomings of the standard measures of brightness. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: OP, TD

NO REF SOV: 002 OTHER: 001

Card 2/2

L 4873-66 EWT(d)/EWT(l)/EWT(m)/EPF(c)/EEC(k)-2/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(h)
ACCESSION NR: AP5019844 ETC(m) IJP(c) JD/WW/JW UR/0181/65/007/008/2330/2332

AUTHOR: Nogteva, V. V.; Paukov, I. Ye.; Strelkov, P. G.

TITLE: Specific heat of metallic arsenic at low temperatures

SOURCE: Fizika tverdogo tela, v. 7, no. 8, 1965, 2330-2332

TOPIC TAGS: arsenic, specific heat, temperature dependence, entropy, enthalpy

ABSTRACT: The purpose of the investigation was to study the temperature dependence of the true specific heat of metallic arsenic in the temperature interval 13--60K, and to obtain more accurate values of the absolute entropy at room temperature (298.15K) and the difference between the enthalpies at 0 and 298.15K. The low-temperature measurements were made with apparatus and a procedure similar to that developed by one of the authors (P. G. Strelkov et al. ZhFKh v. 28, 459, 1954). The results are illustrated in Fig. 1 of the enclosure. A certain anomaly in the temperature dependence of the specific heat, probably connected with the prior history of the sample, was observed in one arsenic sample but not in the others. The results indicate that at temperatures 13.9--17K the specific heat is proportional to the temperature raised to the 3.4 power, and at 17--27K the exponent drops to ~2.8. The reason for this change is not yet clear and calls for more measurements at lower temperatures. Orig. art. has: 2 figures and 1 table.

Card 1/3

3

L 4873-66
ACCESSION NR: AP5019844

ASSOCIATION: Institut teplofiziki SO AN SSSR, Novosibirsk (Institute of Thermophysics, SO AN SSSR)

SUBMITTED: 15Feb65 ENCL: 01 SUB CODE: TD, MM

NR REF SOV: 002 OTHER: 001

Card 2/3

L 4873-66

ACCESSION NR: AP5019844

ENCLOSURE: 01

Specific heats and entropy and enthalpy differences

T°, K	C_P (cal/°)(g/at)	$S^\circ_T - S^\circ_{13.9}$, entr.un.	$H^\circ_T - H^\circ_{13.9}$, cal.g.at^{-1}
13.9	0.0851	0	0
15.0	0.1145	0.00758	0.1097
17.0	0.1710	0.0253	0.3943
20.0	0.2711	0.0607	1.051
25.0	0.4992	0.1444	2.947
30.0	0.7783	0.2598	6.133
35.0	1.059	0.4007	10.73
45.0	1.614	0.7335	24.09
60.0	2.435	1.312	54.56
80.0	3.312	1.976	112.6
100.0	3.968	2.789	185.7
150.0	4.928	4.602	410.9
200.0	5.360	6.087	669.4
250.0	5.638	7.313	944.4
298.15	5.899	8.328	1221.9

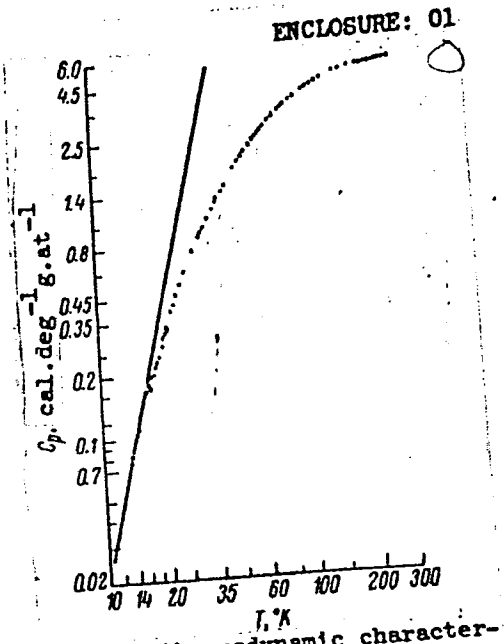

Fig. 1. Temperature dependence of specific heat and other thermodynamic characteristics of metallic arsenic

Card 3/3

L 1640-66 EWT(d)/EWT(l)/EWT(m)/EPF(c)/EEC(k)-2/EPF(n)-2/T/EWP(t)/EWP(b)/ETC(m)
IJP(c) JD/WW

ACCESSION NR: AP5014850 UR/0020/65/162/003/0543/0545

AUTHORS: Paukov, I. Ye.; Strelkov, P. G. (corresponding member AN SSSR); Nogteva, V. V.; Belyy, V. I.

TITLE: Specific heat of black phosphorus at low temperatures

SOURCE: AN SSSR. Doklady, v. 162, no. 3, 1965, 543-545

TOPIC TAGS: entropy, enthalpy, phosphorus, specific heat, low temperature research

ABSTRACT: The purpose of this investigation was to determine the true specific heat of the crystalline modification of black phosphorus, and also to calculate the values of the absolute entropy and enthalpy under standard conditions. The sample investigated was obtained by means of a high pressure bomb, capable of operating up to 13,000 -- 14,000 kg/cm^2 at temperatures up to approximately 300C. The apparatus and the test procedure were essentially similar to those described earlier (P. G. Strelkov et al., ZhFkh v. 28, No. 3, 459, 1954). The results are tabulated. A plot of the specific heat at constant pres-

Card 1/2

L 1640-66

ACCESSION NR: AP5014850 3

sure against the temperature showed no anomalies. At low temperatures (14 -- 40K) the specific heat is proportional to the temperature raised to the 2.7 power. At higher temperatures the power is lower, and at temperatures 13 -- 20K it is equal to 2.7, increasing to the third power as called for by the Debye law. It is pointed out in the conclusion that there are no published data on the specific heat of black phosphorus. Orig. art. has: 1 table and 1 figure.

ASSOCIATION: Institut teplofiziki Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Thermophysics, Siberian Department, Academy of Sciences, SSSR)

SUBMITTED: 17Feb65 ENCL: 00 SUB CODE: TD, GP

NR REF SOV: 002 OTHER: 005

Card 2/2

L 18844-66 EWT(l)/EWT(m)/EPF(n)-2/T/EWP(t)/ETC(m)-6 IJP(c) JD/GG

ACC NR: AP6006855 SOURCE CODE: UR/0181/66/008/002/0580/0582

64
62
B

AUTHOR: Kraftmakher, Ya. A.; Strelkov, P. G.

ORG: All-Union Institute of Physicotechnical Radio Engineering Measurements, Novosibirsk (Vsesoyuznyy institut fizikotekhnicheskikh radiotekhnicheskiy izmereniy)

TITLE: Energy for vacancy formation in gold and vacancy concentration 21,44,55

SOURCE: Fizika tverdogo tela, v. 8, no. 2, 1966, 580-582 27

TOPIC TAGS: gold, crystal vacancy, specific heat, wire, formation heat

ABSTRACT: The modulation method was used for measuring the specific heat 21,44,55 of 99.99% pure gold wires 50 μ in diameter at 700-1300°K to determine the energy for formation of vacancies and their concentration. A potentiometric compensation circuit was used with a temperature modulation frequency of 30 cps and an amplitude of less than 1°. A curve for the specific heat of gold as a function of temperature shows a linear relationship in the 700-900°K range according to the formula

$$C_p = 5.70 + 1.25 \cdot 10^{-3} T \text{ cal/g-at·deg}$$

Card 1/2

L 18844-66
ACC NR: AP6006855

At higher temperatures there is an additional increase in specific heat due to the formation of vacancies. It is found that the energy for formation of vacancies is 1.0 ± 0.1 ev. The vacancy concentration in gold at the melting point is 0.4%. If the value given by Meechan and Eggleston for the increment in electrical resistance due to vacancy formation is accepted, then the ratio of increase in resistance to vacancy concentration will be 1.5 μΩ·cm/% vac. This agrees with the results of theoretical calculations for the noble metals./ The authors are grateful to A. M. Zaytsev for furnishing the specimens. Orig. art. has: 2 figures, 1 table.

SUB CODE: 20/ SUBM DATE: 09Aug65/ ORIG REF: 006/ OTH REF: 017

L 22301-66 EWP(m)/EWP(t)/ETI IJP(c) JD/JG
ACC NR: AP6012460 SOURCE CODE: UR/0181/66/008/004/1049/1052

AUTHORS: Kraftmakher, Ya. A.; Strelkov, P. G. 67 66 13

ORG: Siberian Branch of All Union Scientific Research Institute of Physicotechnical and Radiotechnical Measurements, Novosibirsk (Sibirskiy filial Vsesoyuznogo nauchno-issledovatel'-skogo instituta fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy)

TITLE: Energy of formation and concentration of vacancies in metals.

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1049-1052

TOPIC TAGS: metal property, crystal lattice vacancy, specific heat, physical diffusion, melting point, high temperature phenomenon

ABSTRACT: The authors summarized the results of measurements of the specific heat of high temperatures for tungsten, tantalum, molybdenum, niobium, zirconium, platinum, copper, gold, silver, aluminum, lead, sodium, and potassium and use these and other data to draw certain conclusions concerning the laws governing vacancy formation in their lattices. Some features of the test procedures used by various authors and their effect on the accuracy of their results are briefly discussed.

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L 29301-66

ACC NR: AP6012460

It is shown that in metals with body-centered cubic lattice the self-diffusion is effected by a vacancy mechanism, and not by ring exchange as is sometimes assumed. The energy of vacancy formation in metals is approximately proportional to the melting temperature. Methods of determining the vacancy concentrations are discussed. A table comparing the energy of formation and concentration of vacancies in the various metals, obtained from various sources, is presented. The high values of the vacancy concentrations in metals, obtained by measuring the specific heat at high temperatures, do not contradict the available data on self-diffusion, although there is no direct proof of their correctness. The authors thank I. M. Lifshits for a discussion. Orig. art. has: 1 table.

SUB CODE: 20, 11/SUBM DATE: 09Aug65/ ORIG REF: 015/ OTH REF: 030

Card 2/2 BK

L 30197-66 EWT(l)/EWT(m)/EWP(t)/ETI IJP(c) JD SOURCE CODE: UR/0181/66/008/004/1302/1304

ACC NR: AP6012515

60
B

AUTHORS: Kovalevskaya, Yu. A.; Strelkov, P. G.

ORG: Siberian Branch, All-Union Scientific Research Institute of Physicotechnical and Radiotechnical Measurements, Novosibirsk (Sibirskiy filial Vsesoyuznogo nauchno-issledovatel'skogo institut fiziko-tekhnicheskikh i radiotekhnicheskikh izmereniy)

TITLE: Thermal expansion of cadmium iodide at low temperatures

SOURCE: Fizika tverdogo tela, v. 8, no. 4, 1966, 1302-1304

TOPIC TAGS: cadmium alloy, iodide, thermal expansion, crystal structure, elastic modulus

ABSTRACT: In view of recent interest in the thermal properties of crystals with stratified structure, the authors have measured at low temperature the thermal expansion of a typical stratified crystal, CdI_2, which crystallizes in hexagonal stratified lattice with a layer of Cd surrounded by two layers of I atoms. The temperature dependence of the coefficient of linear expansion was investigated in the interval from 20 to 270K by means of a dilatometer described by one of the authors elsewhere (Strelkov, with S. I. Novikova, PTE no. 5, 105, 1957). The

Card 1/2

Cc 2/2

STRELKOV, P.P.

Materials on hibernation places of bats in the European part of the U.S.S.R. Trudy zool. inst. 25:255-303 '58. (MIRA 11:8)
(Bats) (Animals, Habitations of) (Hibernation)

KAGAL'NITSKIY, V.G., shturman dal'nego plavaniya (Tallinn); STRELKOV, P.P.

Bats over the sea. Priroda 49 no.10:95 O '60. (MIRA 13:10)

1. Zoologicheskiy institut AN SSSR, Leningrad (for Strelkov).
(Black Sea--Bats)

STRELKOV, P.P.

Inhabitants of artificial caverns. Priroda 50 no.5:106-109 My '61. (MIRA 14:5)

1. Zoologicheskiy institut AN SSSR (Leningrad).
(Cave fauna)

GROMOV, I.M.; GUREYEV, A.A.; NOVIKOV, G.A.; SOKOLOV, I.I.; STRELKOV, P.P.; CHAPSKIY, K.K.; PAVLOVSKIY, Ye.N., akademik, glav. red.; BYKHOVSKIY, B.Ye., red.; MONCHADSKIY, A.S., red.; SKARLATO, O.A., red.; SHTAKEL'BERG, A.A., red.; SMIRNOVA, N.V., red.; SMIRNOVA, A.V., tekhn. red.

[Mammals of the U.S.S.R.] Mlekopitaiushchie fauny SSSR. Sost. I.M.Gromov i dr. Moskva, Izd-vo AN SSSR. Pts.1-2. 1963. (MIRA 16:9)

1. Akademiya nauk SSSR. Zoologicheskiy institut.
(Mammals)

ACCESSION NR: AP4040308 S/0057/64/034/006/1040/1049

AUTHOR: Rayzer, M.D.; Strelkov, P.S.; Frank, A.G.

TITLE: Localization by a quadrupole magnetic field of a linear high frequency current in a gas

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.6, 1964, 1040-1049

TOPIC TAGS: plasma, gas discharge, discharge plasma, electric discharge, discharge tube, plasma-magnetic field interaction

ABSTRACT: The authors investigate the effect of a quadrupole magnetic field on the configuration of a 3.2 megacycle/sec linear discharge in hydrogen and air at pressures from 0.006 to 5 mm Hg and currents from 0.3 to 3.0 kA. The discharge was excited by ten 17 turn toroidal coils surrounding the 7.3 cm diameter 72 cm long discharge tube and forming part of the anode circuit of a self-excited oscillator operated with 1 millisec pulses. Plane metal electrodes, 4 or 6 cm in diameter, were located at each end of the discharge tube. These electrodes were connected externally through capacitors and a system of four metal rods parallel to and equidistant from the axis of the tube. Discharge through these rods of a 0.001 farad capacitor charg-

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ACCESSION NR: AP4040308

ed to 6 to 8 kV produced the quadrupole magnetic field, which attained values as great as 3800 Oe at the wall of the discharge tube. Adjacent rods were separated by 15.5 cm, and the oscillating frequency of this system was 1 kilocycle/sec. The azimuthal magnetic field was measured with a magnetic probe that could be positioned anywhere along a radius of the discharge tube. From these measurements the radial distribution of the current was obtained. The total discharge current was measured with a current transformer (Rogovskiy belt). The plasma was probed with 3.2 and 0.82 cm microwaves. Both the transmitted and the reflected waves were observed, and from the phase shift of the reflected waves, the distance from the wall of the tube was determined at which the critical charged particle densities were attained. The loading of the exciting oscillator by the plasma was measured, and from this the conductivity of the plasma was determined. High speed photographs of the discharge were made. Many of the data obtained are presented graphically, and they are discussed in considerable detail. A skin effect was observed at pressures below 0.1 mm Hg; the thickness of the skin layer decreased with increasing current and decreasing pressure. When the quadrupole magnetic field was sufficiently great, the current was confined to an axial region of diameter about two-thirds that of the tube. Such localization of the discharge current did not alter the distribution of charged particles in the plasma; in particular, the positions of the critical charged particle

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ACCESSION NR: AP4040308

densities for microwave reflection did not vary with the quadrupole magnetic field. At pressures above 1 mm Hg a localization of the current was observed even in the absence of the quadrupole magnetic field. This was evinced by a drop in the reflected microwave intensity, indicating loss of radial symmetry of the charged particle density, and by large irregular fluctuations of the magnetic probe readings. The fluctuations of the readings of two magnetic probes separated by 14 cm in the axial direction were uncorrelated under these conditions. Application of the quadrupole magnetic field tended to stabilize the high pressure discharge. "The authors are grateful to B.M.Gutner and N.V.Uspenskaya for assistance in adjusting the high frequency oscillator, to Yu.S.Antonov and R.A.Laty*pov for assistance with the experimental work, and to M.S.Ravinovich, N.A.Boby*rev, I.S.Danilkin, A.A.Rukhadze, and I.S.Shpigel' for discussing the results." Orig.art.has: 10 figures.

ASSOCIATION: Fizicheskiy institut im.P.N.Lebedeva AN SSSR, Moscow (Physics Institute, AN SSSR)

SUBMITTED: 14Jun63 DATE ACQ: 19Jun64 ENCL: 00

SUB CODE: ME, EM NR REF SOV: 006 OTHER: 000

Card 3/3

STRELKOV, R.B.

Analgesic properties of butadione. Farm. i toks. 22 no.5:392-395 S-O '59. (MIRA 13:3)

1. Kafedra farmakologii (zaveduyushchiy - prof. A.K. Sangaylo) Sverdlovskogo gosudarstvennogo meditsinskogo instituta.
(PHENYLBUTAZONE pharmacol.)

STRELKOV, R.B.

Evaluation of analgesic properties of isopromedol in comparison with promedol and morphine; experimental and clinical-pharmacological studies. Farm. i toks. 23 no. 5:390-398 S-O '60. (MIRA 13:12)

1. Kafedra farmakologii (zav. - prof. A.S. Sangaylo) Sverdlovskogo gosudarstvennogo meditsinskogo instituta.
(ANALGESICS)

STRELKOV, A. B., Cand Med Sci -- "Evaluation of the anesthetic properties of isopromedol." Perm', 1961. (Min of Health RSFSR. Perm' State Med Inst) (KL, 8-61, 265)

L 31368-65 ENG(j)/EWT(m)

ACCESSION NR: AP4046444 S/0205/64/004/005/0756/0759

19

AUTHOR: Strelkov, R. B.; Semenov, L. F. 18 B

19

TITLE: Effects of some radioprotectors on animal brain oxygen levels

SOURCE: Radiobiologiya, v. 4, no. 5, 1964, 756-759

TOPIC TAGS: animal, mouse, radioprotector, amine, sulfur, brain tissue, oxygen voltage, oxygen level, polarography, adrenalin, cystamine, histamine, acetylcholine

ABSTRACT: In experiments on 640 white mice (18-22 g) the effects of two groups of radioprotectors (amine compounds and sulfur bearing preparations) were investigated in relation to oxygen tension of brain tissue, oxidation levels in nerve centers and at peripheral points, and the general state of the central nervous system. After initial oxygen tension levels of the brain were determined by a polarographic method for each animal without anesthesia, a hole was drilled in the skull and a platinum electrode was implanted in the brain tissue and an indifferent silver chloride electrode was affixed to the animal's back extremity. Optimal doses of the following

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ACCESSION NR: AP4046444

radioprotectors (aqueous solutions) were administered subcutaneously: adrenalin, serotonin, metoxytryptamine, histamine, acetylcholine combined with amines, beta-mercaptoethylamine, cystamine, aminoethylisothiouron (AET), thiourea, and unithiol. Biopotential shifts were observed for 45-60 min following administration. In additional experiments radioprotector effects on the oxygen level of the spleen and liver were investigated and also the effects of anesthetics on brain oxygen levels. Results show that radioprotectors of different structure do not produce the same type of brain oxygen level changes. The sulfur bearing preparations AET, cystamine, beta-mercaptoethylamine and thiourea do not affect the brain tissue oxygen level. Most of the amine radioprotectors induce an increase of the brain tissue oxygen level and contribute to hypoxia development in the spleen and liver tissues. The exceptions are histamine and acetylcholine which do not increase the brain oxygen level and sometimes tend to reduce its level. Earlier findings on differences between amine and sulfur bearing radioprotectors were confirmed in the present study. On the basis of comparing brain oxygen level changes and the antiradiation activity of a given preparation, it appears that radioprotective action can take place with an increased

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ACCESSION NR: AP4046444

brain oxygen level as well as with an unchanged level or even with a somewhat reduced level. If brain oxygen levels are considered an index of CNS physiological activity, then nerve center shifts can be of an excitatory nature or of a depressive nature under the action of various radioprotectors. Orig. art. has: 1 table and 2 figures.

ASSOCIATION: Institut eksperimental'noy patologii i terapii AMN SSSR, Sukhumi (Experimental Pathology and Therapy Institute AMN SSR)

SUBMITTED: 14Feb63 ENCL: 00 SUB CODE: LS, PH

NR REF SOV: 006 OTHER: 005

Card 3/3

STRELKOV, K.B.

Multipolarograph. Bul. fiziol. i eksp. terap. 9 no.1:74-76 Ja-F '65. (MIRA 18:11)

1. Laboratoriya radiologii (zav. - L.F. Semenov) Instituta eksperimental'noy patologii i terapii AMN SSSR, Sukhumi.

L 31849-66 EWT(m)

ACC NR: AP6021318 (N) SOURCE CODE: UR/0390/65/028/005/0558/0561

AUTHOR: Strelkov, R. B.; Topchiyan, L. H.

ORG: Laboratory of Radiology /headed by L. F. Semenov/, Institute of Experimental Pathology and Therapy, AMN SSSR, Sukhumi (Laboratoriya radiologii Instituta eksperimental'noy patologii i terapii, AMN SSSR)

TITLE: Certain properties of animal blood protected by cysteinamine from ionizing radiation

SOURCE: Farmakologiya i toksikologiya, v. 28, no. 5, 1965, 558-561

TOPIC TAGS: blood, radiation biologic effect, experiment animal

ABSTRACT: Data produced in the study of the histamine-like properties of the blood of animals to which was added cysteinamine disulfide (2-aminoethanethiol) in a dose to protect from the action of penetrating radiation are presented. They indicate that there is no difference in the action of the blood of control and protected animals on isolated guinea pig intestine. It was concluded that Bacq's hypothesis on the mechanism of action of cysteinamine disulfide as a stimulator for the introduction into the blood of histamine-like substances finds no experimental confirmation. Following administration of cysteinamine disulfide no changes occur in the histamine and histamine-like substances blood concentration. Orig. art. has: 3 tables. [JPRS]

SUB CODE: 06 / SUBM DATE: 04Dec64 / ORIG REF: 003 / OTH REF: 009

Card 1/1 JS UDC: 617.001.28-085.777.8-07:516.154+612.129.014.482-06:615.777.8

L 20747-66 EWT(m)
ACC NR: AP6007766 SOURCE CODE: UR/0205/66/006/001/0109/0111

24
23

AUTHOR: Strelkov, R. B.; Vorob'yev, O. Ya.

ORG: Institute of Experimental Pathology and Therapy AMN SSSR, Sukhimi (Institut eksperimental'noy patologii i terapii AMN SSSR)

TITLE: The concentration of oxygen in tissues during barbamyl anesthesia

SOURCE: Radiobiologiya, v. 6, no. 1, 1966, 109-111

TOPIC TAGS: irradiation resistance, gamma irradiation, irradiation damage, sodium amytal

ABSTRACT: The effect of barbamyl (sodium amytal) on the O_2 concentration in the spleen, liver, and brain of white rats was investigated by the polarographic method. The experiments were performed on 45 white male rats weighing between 185 and 240 g. A 0.2-mm platinum electrode (the cathode) was inserted directly into the tissues of the organ under investigation, and a silver chloride electrode (the anode) was fastened to the tail of the animal. A 75-mg/kg dose of barbamyl was injected intraperitoneally. When, at the end of the experiment, the animals were killed, the oxygen content in the spleen dropped sharply. Data on O_2 changes in the spleen of

UDC: 628.58

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ACC NR: AP6007766

white rats receiving protective dosages of barbamyl and serotonin are presented in tabular form. Barbamyl brought about an increase in oxygen content in the spleen while serotonin significantly reduced it. Barbamyl had virtually no impact on oxygen content in liver and brain tissue. Data on the anti-irradiation effect of barbamyl (75 mg/kg) are presented in a table. The data show that 13.3% (4 out of 30) of the experimental animals survived 30 days following exposure to 850 rad of gamma irradiation. It is concluded that barbamyl's protective action is independent of the "oxygen effect" in spleen tissue. It is suggested that the protective effect is a result of barbamyl's effect on the central nervous system. Orig. art. has: 3 tables. [14]

SUB CODE: 06/ SUBM DATE: 26Jun64/ ORIG REF: 007/ OTH REF: 011
ATD PRESS: 4224

Card 2/2

ACC NR: AP6[illegible] (A) SOURCE CODE: UR/0219/66/062/008/0049/0051

30
29
B

AUTHOR: Strelkov, R. B.; Vorob'yev, O. Ya.

ORG: Institute of Experimental Pathalogy and Terapy, AMN SSSR, Sukhumi (Institut eksperimental'noy patalogii i terapii AMN SSSR)

TITLE: Investigation of the oxygen condition in the brain tissue of albino rats after injection of radioprotective agents

SOURCE: Byulleten' eksperimenta;'noy biologii i meditsiny, v. 62, no. 8, 1966, 49-51

TOPIC TAGS: polarography, brain tissue, radioprotective agent, serotonin, cystamine, oxygen

ABSTRACT: Experiments using polarography have been carried out for studying the effect of sulfur-containing radioprotective agents, cystamine (100 mg/kg) and indolylalkylamine serotonin (20 mg/kg), on the oxygen tension in the functioning brain tissue of albino rats with implanted platinum electrodes lystamine

Card 1/2 UDC: 615.777.8-031:611.81-092:/612.82:612.26

ACC NR: AP6028949

reduced pO_2 in the brain tissue by 7.3%, and serotonin increased it by 15.2%. It is presumed that serotonin produces a specific effect on the metabolic processes in the brain tissue, which may be of some importance in the radioprotective mechanism of this agent. A difference has been noted in the protective mechanism of agents containing sulfohydryls and those containing indolylalkylamines. The paper was presented by V. V. Parin, Active Member of AMN SSSR, on 7 October 1964. Orig. art. has: 1 table. [Based on authors' abstract] [NT]

SUB CODE: 06/ SUBM DATE: 07Oct64/ ORIG REF: 010/ OTH REF: 008/

Card 2/2

ACC NR: AP7004075 SOURCE CODE: UR/0301/67/013/001/0076/0078

AUTHOR: Strelkov, R. B.

ORG: Institute of Experimental Pathology and Therapy, AMN SSSR, Sukhumi (Institut eksperimental'noy patologii i terapii AMN SSSR)

TITLE: Effect of protective antiradiation preparations on brain tissue ammonia content in rats

SOURCE: Voprosy meditsinskoy khimii, v. 13, no. 1, 1967, 76-78

TOPIC TAGS: ionizing radiation, biologic effect, radiation, ~~radiation~~, ~~radiation~~ drug, tissue chemistry, central nervous system, radiation protection

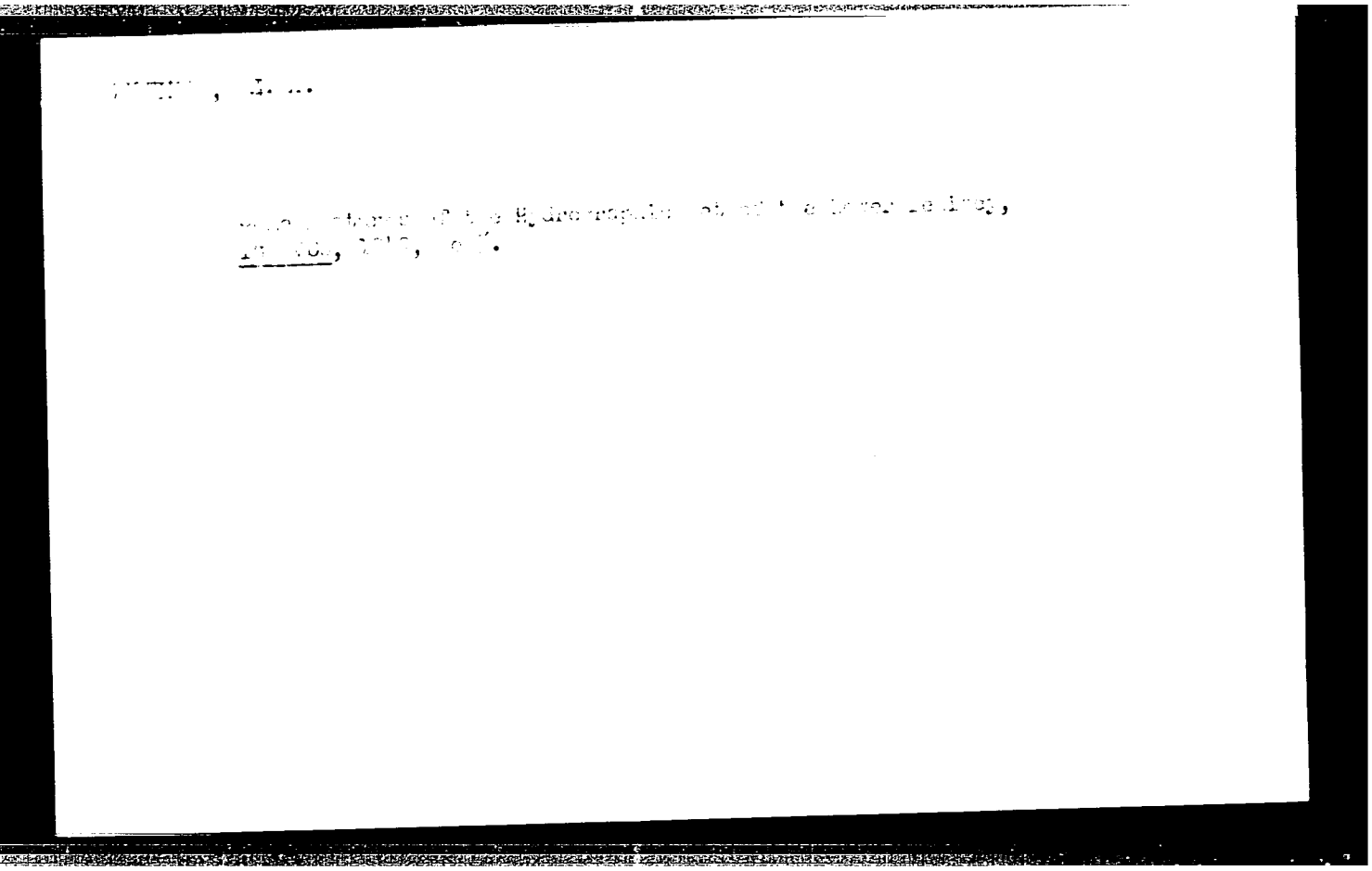
ABSTRACT: Experiments were conducted on 163 white rats weighing 165—240 g. Both males and females were used and experiments took place at the same time of day. The following radioprotective drugs were studied: cystamine-150 mg/kg; BMEA-150 mg/kg; AET-200 mg/kg; thiourea-2250 mg/kg; unithiol-350 mg/kg; 5-methoxy-tryptamine-20 mg/kg; and serotonin-25 mg/kg. Camphor and NH_4Cl were used to stimulate the CNS. Animals were killed by immersion in liquid nitrogen and oxygen. It was found that cystamine, BMEA, AET, thiourea, and unithiol had no effect, while serotonin and 5-methoxytryptamine decreased the ammonia content of brain tissue. UDC: 615.771.8-092:[612.822.1:612.398.194

SUB CODE: 06/ SUBM DATE: 26Jul65/ ORIG REF: 008/ OTH REF: 002/ ATD PRESS: 5113

Card 1/1

STRELKOV, S.A., professor.

Photoelectric method of measuring torque. Mekh.stroi. 11 no.11: 22-26 N '54. (MLRA 7:12)
(Torsion) (Photoelectric measurement)



STRELKOV, S.A.

New data on the relief and Quaternary deposits of the Lena Valley north of the Arctic Circle. Trudy Nauch.-issl. inst. geol. Arkt. 89: 308-317 '56. (MIRA 11:1)

(Lena Valley--Geology)

TKACHENKO, B.V.; RABKIN, M.I.; DEMOKIDOV, K.K.; VAKAR, V.A.; GROZDILOV, A.L.; BUTAKOVA, Ye.L.; STREIKOV, S.A.

Geology of the northern part of the Central Siberian Pateau. Trudy Nauch.-issl. inst. geol. Arkt. 81:133-242 '57. (MIRA 11:5)

1. Sotrudniki instituta geologii Arktiki.
(Central Siberian Plateau—Geology)

STRELKOV, S.A.

Mineral building materials in the Soviet Arctic. Inform. biul. MIIGA no.2:45-53 '58. (MIRA 12:10)
(Russia, Northern--Building materials)

STRELKOV, S.A.; DIBNER, V.D.; ZAGORSKAYA, N.G.; SOKOLOV, V.N.; YEGOROVA, I.S.; POL'KIN, Ya.I.; KIRYUSHINA, M.T.; PUMINOV, A.P.; YASHINA, Z.I.; SAKS, V.N., red.: NIKITINA, V.N., red.izd-va; GUROVA, O.A., tekhn.red.

[Quaternary sediments in the Soviet Arctic] Chetvertichnye otlozheniia Sovetskoi Arktiki. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol.i okhr.nedr, 1959. 231 p. (Leningrad. Nauchno-issledovatel'skii institut geologii Arktiki. Trudy, vol.91). (MIRA 13:5)

(Russia, Northern--Geology).

SOV/12-91-1-10/22

5(4).

AUTHOR: Strelkov, S.A.

TITLE: Paleogeographical Regularities as Shown on the Map of Quaternary Deposits in North Siberia (Otrazheniye paleogeograficheskikh zakonomernostey na karte chetvërtichnykh otlozheniy Severa Sibiri)

PERIODICAL: Izvestiya Vsesoyuznogo geograficheskogo obshchestva, Vol 91, Nr 1, pp 80-82 (USSR)

ABSTRACT: In 1956, the Institut geologii Arktiki (Institute of Arctic Geology) prepared the first map of Quaternary deposits of the central part of northern USSR on a scale of 1 : 2,500,000. It comprises the Siberian territory north of 66° northern latitude from the Ural to the Yana River, including the Arctic islands from Franz Joseph Land to the Novosibirsk islands. An explanatory text is attached to the map. The

Card 1/2

Paleogeographical Regularities as Shown on the Map of Quaternary Deposits in North Siberia

distribution of Quaternary deposits of various origin and age reflect the basic paleogeographical regularities for North Siberia.

VORONOV, P.S.; KIRYUSHINA, M.T.; POL'KIN, Ya.I., STRELKOV, S.A.

Latest tectonic movements in the Arctic portion of the Lena-Yenisey region. Trudy NIIGA 105:92-115 '59. (MIRA 13:5)
(Russia, Northern--Geology, Structural)